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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,889	05/12/2005	Reinhart Von Nordenskjold	REI-001-NP	1832

24964 7590 06/24/2010
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EXAMINER

HOBBS, MICHAEL L

ART UNIT	PAPER NUMBER
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1797

NOTIFICATION DATE	DELIVERY MODE
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06/24/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/534,889	Applicant(s) VON NORDENSKJOLD, REINHART	
	Examiner MICHAEL HOBBS	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-19 and 27-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-19 and 27-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's amendment filed on 03/04/2010 has been considered and entered for the record.

Claim Interpretation

A claim limitation will be presumed to invoke 35 U.S.C. 112, sixth paragraph, if it meets the following 3-prong analysis: the claim limitations must use the phrase "means for" or "step for"; the "means for" or "step for" must be modified by functional language; and the phrase "means for" or "step for" must not be modified by sufficient structure, material, or acts for achieving the specified function. (MPEP 2181)

Claims 14-19 recites "means for segregating the raw material from the pre-acidified material". These limitations follow the 3-prong analysis and so 35 U.S.C. 112 6th paragraph is invoked. The means for selectively removing this material includes a sieve, a gas exit outlet with a nozzle and a device to withdraw from the top of the pre-acidifying region (see [0030]; [0040]; [0044]; [0050]).

Drawings

2. The subject matter of this application admits of illustration by a drawing to facilitate understanding of the invention (see specification, page 4, etc.).

Applicant is required to furnish a drawing under 37 CFR 1.81(c). No new matter may be introduced in the required drawing. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d).

Specification

3. The disclosure is objected to because of the following informalities: the specification is missing the section titles within the specification such as "Background", "Summary of the Invention", "Brief Description of the Drawings" and "Detailed Description".
4. The specification is also objected to because it refers to the drawings, however, no drawings are present (were filed) with the application).

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
6. Claims 14-19 and 27-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
7. Claim 14 recites the limitation "high load stage region" in line 10 and recites the limitation "heavy load region" in line 12. There is insufficient antecedent basis for these limitations in the claim.
8. Claim 31 recites the limitation "high load stage region" in line 10 and recites the limitation "heavy load region" in line 12. There is insufficient antecedent basis for these limitations in the claim.

Art Unit: 1797

9. Claim 14 is indefinite since the structure of the pre-acidification region implies that this a pre-processing step for an acidification region. Instead, the claim proceeds to a main load region and it appears that the next stage of the fermentor is missing.

10. Claim 31 is indefinite since the inclusion of a pre-acidification step implies that the next step in the process is the acidification of the waste material. As the material is then transported to main load section for aerobic fermentation, this intermediate step, i.e. the acidification step, appears to be missing.

11. Claims 15-19, 27-30 and 32-38 are indefinite since the claims incorporate all the limitations of the rejected independent claims.

12. Appropriate corrective action is required.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 14 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by von Nordenskjöld (US 6,395,173 B1) (will be referred to as '173).

15. For claim 14, '173 discloses a method and device for biologically treating a fluid such as waste water in order to produce a biogas that includes a tank (tank 2) that has a mixing and acidifying region (region 2) which is being interpreted as

Art Unit: 1797

the pre-acidifying region of the instant application, a heavy load region (region 7), a light load region (region 9) and a sedimentation region (region 10) where the regions are separated by partition walls (walls 12, 13 & 14; col. 2 lines 48-53 & 60-63). The heavy and light load regions are covered with a sheeting (sheet 15) that forms a gas reservoir over the two sections and this sheeting or cover includes submerging tabs (tabs 30) that provides a perfect gas seal (col. 4 lines 39-43). Finally, the material within the mixing and acidifying region or pre-acidifying region is transported to the heavy load region by way of a metering pump (pump 18) and conduit (conduit 31; 3 lines 27-29).

16. With regards to the bacteria, '173 discloses using an activated sludge within this region and using two independent and different stocks of bacteria (col. 3 lines 18-22 & 45-47). Also, the pH-value of this region is adjusted by additives delivered from an additive device (device 16; col. 3 lines 7-10) and therefore, fully capable of adjusting the pH of the mixing and acidifying region to value that is not greater than 6. For the heavy and light load regions, these regions contain activated-sludge beds (col. 3 lines 47-48) and are the regions that produce the biogas, hence the use of a sheeting or cover to provide a gas tight seal over both regions.

17. The applied reference of '173 does not **literally** state that the pump segregates and selectively transports the material to the high load region, however '173 discloses using devices to aerate the waste water in the mixing and acidifying region (col. 3 lines 24-16) and a metering pump near the bottom of the tank in order to remove material into the heavy load region as was discussed

Art Unit: 1797

above. Thus, the pump does selectively segregate the material within the tank due to differences in the density of the material within the acidification region and in combination with the aerator and conduit, transports the material from the first region to a main load region. Therefore, the pump, aerator and conduit are the art equivalent of the means for segregating and selectively transporting material.

18. Regarding the flotation device and withdrawal means in the lower end of the tank of claim 18, '173 discloses this limitation as was discussed in claim 14.

19. Therefore, '173 meets the limitations of claims 14 and 18.

Claim Rejections - 35 USC § 103

20. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

21. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

22. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that

Art Unit: 1797

the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Assuming, *arguendo*, that the applied reference of '173 does not disclose pre-acidification, the following rejection applies.

23. Claims 14 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over von Nordenskjöld (US 6,395,173 B1) (will be referred to as '173) in view of Ahn et al. (*Water Research*. Vol. 35, no. 18, pp 4267-4276, 2001).

24. For claim 14, ' 173 a method and device for biologically treating a fluid such as waste water in order to produce a biogas that includes a tank (tank 2) that has a mixing and acidifying region (region 2), a heavy load region (region 7), a light load region (region 9) and a sedimentation region (region 10) where the regions are separated by partition walls (walls 12, 13 & 14; col. 2 lines 48-53 & 60-63). The heavy and light load regions are covered with a sheeting (sheet 15) that forms a gas reservoir over the two sections and this sheeting or cover includes submerging tabs (tabs 30) that provides a perfect gas seal (col. 4 lines 39-43). Finally, the material within the mixing and acidifying region or pre-

Art Unit: 1797

acidifying region is transported to the heavy load region by way of a metering pump (pump 18) and conduit (conduit 31; 3 lines 27-29).

25. With regards to the bacteria, '173 discloses using an activated sludge within this region and using two independent and different stocks of bacteria (col. 3 lines 18-22 & 45-47). Also, the pH-value of this region is adjusted by additives delivered from an additive device (device 16; col. 3 lines 7-10) and therefore, fully capable of adjusting the pH of the mixing and acidifying region to value that is not greater than 6. For the heavy and light load regions, these regions contain activated-sludge beds (col. 3 lines 47-48) and are the regions that produce the biogas, hence the use of a sheeting or cover to provide a gas tight seal over both regions.

26. The applied reference of '173 does not **literally** state that the pump segregates and selectively transports the material to the high load region, however von Nordenskjöld discloses using devices to aerate the waste water in the mixing and acidifying region (col. 3 lines 24-16) and a metering pump near the bottom of the tank in order to remove material into the heavy load region as was discussed above. Thus, the pump does selectively segregate the material within the tank due to differences in the density of the material within the acidification region and in combination with the aerator and conduit, transports the material from the first region to a main load region. Therefore, the pump, aerator and conduit are the art equivalent of the means for segregating and selectively transporting material.

Art Unit: 1797

27. However, '173 does not literally specify that there is a pre-acidification region within the tank. However, it is the examiner's position that the acidification region can become a pre-acidification region by adjusting the pH of the contents within the first region.

28. Ahn discloses a pre-acidification process of treating brewery wastewater that includes a pre-acidification reactor. For claim 15 includes the step of using a pre-acidification reactor (page 4268, introduction, paragraph 9) prior to sending the waste stream to a second reactor or tank (Fig. 1) where the pre-acidified material is drawn from the top of the tank (Fig. 1). The pre-acidification step leads to maximizing the hydrogen utilization of the microorganisms within the reactor and continuous granule formation (page 4268, introduction, paragraph 7). Moreover, the step of sending only pre-acidified materials is implicit within Ahn since material is removed from the top of the pre-acidification tank (Fig. 1).

Therefore, it would be obvious to one of ordinary skill in the art to employ the pre-acidification step as suggested by Ahn within the wastewater treating system of '173. The suggestion for doing so at the time would have been in order to increase the organic loading rate and removal efficiency of the reactor (page 4267 introduction paragraph 2).

29. Regarding the flotation device and withdrawal means in the lower end of the tank of claim 18, von Nordenskjöld discloses this limitation as was discussed in claim 14.

Art Unit: 1797

30. Claims 15 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over either (1) von Nordenskjöld (US 6,395,173 B1) (will be referred to as '173) or (2) von Nordenskjöld (US 6,395,173 B1) (will be referred to as '173) in view of Ahn et al. (*Water Research*. Vol. 35, no. 18, pp 4267-4276, 2001) as applied above and in further view of Fassell et al. (US 3,920,548) (will be referred to as '548).

31. For claims 15 and 27, '173 discloses using an orifice (orifice 19) in the upper part of the partition wall (wall 13) to allow material to pass from the heavy load region to the light load region (col. 4 lines 15-17). However, '173 is silent regarding a device to withdraw material from the top region of the mixing and acidifying region such as a spillway. Ahn differs from the applied reference regarding a spillway.

32. '548 discloses a wet oxidation process for treating waste water that includes a horizontally elongated reactor that has several chambers separated by baffles (baffles 26). For claims 15 and 27, the baffles of '548 include notches (notches 28) at the top of each baffle that serves to make the flow of fluid from one chamber to the next be essentially one-way (col. 10 lines 6-11). Furthermore, these notches are being interpreted as the spillway of the instant application.

33. The notches of '548 solves the problem of removing material from the top of one chamber, in this case the pre-acidifying region, and shows that the use of this structure was known at the time of the instant application. Barring any alleged unexpected results, it would have been obvious for one of ordinary skill in

Art Unit: 1797

the art to employ the notch as suggested by '548 within the partition separating the mixing and acidifying region and heavy load regions of '173 and Ahn in order to obtain the predictable result of moving treated fluid from one chamber to the next.

34. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over either (1) von Nordenskjöld (US 6,395,173 B1) (will be referred to as '173) in view of Fassell et al. (US 3,920,548) (will be referred to as '548) or (2) von Nordenskjöld (US 6,395,173 B1) (will be referred to as '173) in view of Ahn et al. (*Water Research*. Vol. 35, no. 18, pp 4267-4276, 2001) and Fassell et al. (US 3,920,548) (will be referred to as '548) as applied above and in further view of Reynell (U.S. 5,958,756) (will be referred to as '756).

35. For claim 28, '173 and Ahn are silent regarding a nozzle used to withdraw material from the top of the acidification tank.

36. '756 teaches a fluids digestion vessel for treating waste that for claim 28 includes a conduit or spillway so that the flow of liquid can occur by gravity (col. 3 lines 59-60) which is in the upper portion of the tank (Fig. 1) where the inlet of the conduit is being interpreted as a nozzle. Barring any alleged unexpected results, it would be obvious to one of ordinary skill in the art to employ the conduit or nozzle suggested by '756 within the waste water treatment of '173 and Ahn in order to obtain the predictable result of removing material from the top of the tank.

Art Unit: 1797

37. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over either (1) von Nordenskjöld (US 6,395,173 B1) (will be referred to as '173) or (2) von Nordenskjöld (US 6,395,173 B1) (will be referred to as '173) in view of Ahn et al. (*Water Research*. Vol. 35, no. 18, pp4267-4276, 2001) as applied above and in further view of Daniels (US 5,198,113 A) (will be referred to as '113).

38. '173 and Ahn differ from the instant claim regarding the means for segregating and selectively transporting being a sieve.

39. '113 discloses a septic system that uses a filter and filtering medium to treat waste water. For claim 17, '113 discloses that a filter (filter 53) that includes an outer casing (casing 55) with a filter material (material 57) in order to filter the material with suspended solids as it leaves the first tank (tank 11) and enters the second tank (tank 29). Further, this filter is being broadly interpreted as a sieve since, in one embodiment, it comprises a sponge (col. 10 lines 45-50). This sponge is, therefore, fully capable of segregating and transporting material since only material that is smaller than the pore size can pass through this filter.

Therefore, it would have been obvious for one of ordinary skill in the art to employ the filter suggested by '113 within '173 and Ahn in order to obtain the predictable result of controlling which material is transferred to the second tank.

The suggestion for doing so at the time would have been in order to strain small solid particles (col. 10 lines 64-65).

40. Claims 31, 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over von Nordenskjöld (US 6,395,173 B1) (will be referred to as

Art Unit: 1797

'173) in view of Ahn et al. (*Water Research*. Vol. 35, no. 18, pp4267-4276, 2001) as applied above and in further view of Daniels (US 5,198,113 A) (will be referred to as '113).

41. '173 and Ahn differ from the instant claim regarding the means for segregating and selectively transporting being a sieve.

42. '113 discloses a septic system that uses a filter and filtering medium to treat waste water. For claim 17, '113 discloses that a filter (filter 53) that includes an outer casing (casing 55) with a filter material (material 57) in order to filter the material with suspended solids as it leaves the first tank (tank 11) and enters the second tank (tank 29). Further, this filter is being broadly interpreted as a sieve since, in one embodiment, it comprises a sponge (col. 10 lines 45-50). This sponge is, therefore, fully capable of segregating and transporting material since only material that is smaller than the pore size can pass through this filter.

Therefore, it would have been obvious for one of ordinary skill in the art to employ the filter suggested by '113 within '173 and Ahn in order to obtain the predictable result of controlling which material is transferred to the second tank.

The suggestion for doing so at the time would have been in order to strain small solid particles (col. 10 lines 64-65).

43. For claim 31, '173 discloses a method and devise for biologically treating a fluid such as waste water in order to produce a biogas that includes the step of using tank (tank 2) that has a mixing and acidifying region (region 2), a heavy load region (region 7), a light load region (region 9) and a sedimentation region (region 10) where the regions are separated by partition walls (walls 12, 13 & 14;

Art Unit: 1797

col. 2 lines 48-53 & 60-63). The heavy and light load regions are covered with a sheeting (sheet 15) that forms a gas reservoir over the two sections and this sheeting or cover includes submerging tabs (tabs 30) that provides a perfect gas seal (col. 4 lines 39-43). Finally, the material within the mixing and acidifying region or pre-acidifying region is transported to the heavy load region by way of a metering pump (pump 18) and conduit (conduit 31; 3 lines 27-29).

44. With regards to the bacteria and pH-value of the pre-acidification region, '173 discloses using an activated sludge within this region and using two independent and different stocks of bacteria (col. 3 lines 18-22 & 45-47). Also, the pH-value of this region is adjusted by additives delivered from an additive device (device 16; col. 3 lines 7-10). For the heavy and light load regions, '173 discloses the step where these regions contain activated-sludge beds (col. 3 lines 47-48) and are the regions that produce the biogas, hence the use of a sheeting or cover to provide a gas tight seal over both regions.

45. However, '173 discloses an acidifying tank, but is silent regarding a pre-acidifier.

46. Ahn discloses a pre-acidification process of treating brewery wastewater that includes a pre-acidification reactor. For claim 31 includes the step of using a pre-acidification reactor (page 4268, introduction, paragraph 9) prior to sending the waste stream to a second reactor or tank (Fig. 1) where the pre-acidified material is drawn from the top of the tank (Fig. 1). The pre-acidification step leads to maximizing the hydrogen utilization of the microorganisms within the reactor and continuous granule formation (page 4268, introduction, paragraph 7).

Art Unit: 1797

Moreover, the step of sending only pre-acidified materials is implicit within Ahn since material is removed from the top of the pre-acidification tank (Fig. 1).

Therefore, it would be obvious to one of ordinary skill in the art to employ the pre-acidification step as suggested by Ahn within the wastewater treating method of '173. The suggestion for doing so at the time would have been in order to increase the organic loading rate and removal efficiency of the reactor (page 4267 introduction paragraph 2).

47. However, '173 and Ahn differ from the instant claim regarding solids being sent to the fermentor. However, it is the examiner's position that the waste water sent to the fermentor of '173 contains solids.

48. '113 discloses for claim 31 sending solids to be processed within the septic tank (col. 10 lines 13-16) which is part of the raw waste sent to the tank of '113. Therefore, it would have been obvious to one of ordinary skill in the art to employ the step of treating solid waste as suggested by '113 within '173 and Ahn with a reasonable expectation of producing biogas.

49. For claim 34, '173 teaches aerating the effluent with air or oxygen which reads on a floatation that is used to mix the fluid in the acidifying range/chamber (col. 3 lines 24-26). Also, '173 teaches using the pump (pump 18) to pull fluid from the bottom of the acidifying range (col. 3 lines 27-29). The step of not withdrawing material that has been pre-acidified is implicit in the withdrawal step of '173.

Art Unit: 1797

50. Finally, for claim 35, '173 discloses the step where the materials entering the acidifying tank comprise brewery waste water and excess sludge or solid and a liquid (col. 2 lines 65-67; col. 5 lines 32-37).

51. Claims 16, 19 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over either (1) von Nordenskjöld (US 6,395,173 B1) (will be referred to as '173) in view of Fassell et al. (US 3,920,548) (will be referred to as '548) or (2) von Nordenskjöld (US 6,395,173 B1) (will be referred to as '173) in view of Ahn et al. (*Water Research*. Vol. 35, no. 18, pp 4267-4276, 2001) and Fassell et al. (US 3,920,548) (will be referred to as '548) as applied above and in further view of Mann (U.S. 2003/0213702) (will be referred to as '702).

52. For claim 16, '173 teaches that the effluent in the acidifying range is mixed with an agitator that is driven by a motor (col. 3 lines 16-17; Fig. 1). While '173 does not specify that the mixer is a stirrer, but based on the figure of the reference, it is implied that the mixer is a mechanical agitator like a stirrer. Ahn differs from the instant claim regarding a stirrer.

53. '702 discloses a waste disposal apparatus for receiving marine waste from a macerating marine toilet where the waste is sent to a disposal tank consisting of two chambers. For claim 16, the first chamber or electrolysis chamber holds the waste initially until the electrolysis chamber is flushed under the direction of an operator or a controller. With regards to claim 16, '702 teaches an electronic controller that operates the waste treatment apparatus (page 4 [006] lines 1-3, Fig. 3 element 55). The controller of '702 monitors the level in the tank at a

Art Unit: 1797

selected level in order to warn the operator that the tank is full (page 4 [0068] lines 2-4) or to discharge flocculation polymers to settle the solid portion of the waste out of solution (page 4 [0067] lines 10-12).

54. Furthermore, for claim 29, the controller of '702 would be fully capable of controlling the agitator of '173.

55. It would be obvious to one of ordinary skill in the art to employ the controller as suggested by '702 within the teachings of '173 alone or with Ahn in order to control the level of waste within the tank. The suggestion for doing so at the time would have been in order to prevent surplus waste from accumulating in the chamber (page 5 [0068] lines 7-8).

56. For claim 19, '173 and Ahn do not teach a controller that operates the floatation device and the withdrawal device.

57. With regards to claim 19, '702 teaches an electronic controller that operates the waste treatment apparatus (page 4 [006] lines 1-3, Fig. 3 element 55). The controller of '702 monitors the level in the tank at a selected level in order to warn the operator that the tank is full (page 4 [0068] lines 2-4) or to discharge flocculation polymers to settle the solid portion of the waste out of solution (page 4 [0067] lines 10-12). It would be obvious to one of ordinary skill in the art to employ the controller as suggested by '702 within the teachings of von Nordenskjöld alone or with Ahn in order to control the level of waste within the tank. The suggestion for doing so at the time would have been in order to prevent surplus waste from accumulating in the chamber (page 5 [0068] lines 7-8).

58. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over either (1) von Nordenskjöld (US 6,395,173 B1) (will be referred to as '173) or (2) von Nordenskjöld (US 6,395,173 B1) (will be referred to as '173) in view of Ahn et al. (*Water Research*. Vol. 35, no. 18, pp4267-4276, 2001) as applied above and in further view of Wilkie (US 2005/0167359 A1) (continuation in part of application 10/277,486 filed on October 22, 2002) (will be referred to as '359).

59. Regarding a mechanical comminution device, '173 and Ahn differ from the instant claim regarding a mechanical pre-treatment of the raw materials.

60. '359 discloses a fixed-film anaerobic digestion of flushed waste where the slurry is pre-treated by mechanical means. For claims 30, '359 discloses pre-treating the raw materials by mechanical comminution ([0055]). Therefore, it would be obvious to one of ordinary skill in the art to employ the pre-treatment as suggested by '359 in order to process the raw waste of '173 and Ahn. The suggestion for doing so at the time would have been in order to render small or reduce the size of the suspended solids ([0055]).

61. Claims 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over von Nordenskjöld (US 6,395,173 B1) (will be referred to as '173) in view of Ahn et al. (*Water Research*. Vol. 35, no. 18, pp4267-4276, 2001) as applied above and in further views of Daniels (US 5,198,113 A) (will be referred to as '113) as applied above and Copa et al. (US 4,919,815) (will be referred to as '815).

Art Unit: 1797

62. For claim 32, '173 discloses a method and device for biologically treating a fluid such as waste water in order to produce a biogas that includes the step of using tank (tank 2) that has a mixing and acidifying region (region 2), a heavy load region (region 7), a light load region (region 9) and a sedimentation region (region 10) where the regions are separated by partition walls (walls 12, 13 & 14; col. 2 lines 48-53 & 60-63). The heavy and light load regions are covered with a sheeting (sheet 15) that forms a gas reservoir over the two sections and this sheeting or cover includes submerging tabs (tabs 30) that provides a perfect gas seal (col. 4 lines 39-43). Finally, the material within the mixing and acidifying region or pre-acidifying region is transported to the heavy load region by way of a metering pump (pump 18) and conduit (conduit 31; 3 lines 27-29).

63. For claim 32, Ahn discloses withdrawing material from the top of the pre-acidifying tank, but both von Nordenskjöld and Ahn are silent about letting the materials settle and withdrawing the material from an upper portion of the tank through a sieve.

64. '113 differs from the instant claims of 32 and 33.

65. For claims 32 and 33, '815 the step where liquid in the anaerobic zone flows upward through a filter bed or sieve (col. 4 lines 49-51, Fig. 2 element 20) that retains some of the solids as the fluid flows to the aerobic zone. The transportation means of moving the fluid from the first tank to the second is due to an upward flow of air and liquid that is used to re-suspend the solids within the tank and promotes the flow of the waste fluid to the aerobic tank (col. 2 lines 34-36). The filter bed also serves to retain the majority of solids within the first

Art Unit: 1797

reactor which allows further treatment of the solids within the anaerobic vessel.

The solids are settled and then this is followed by another aeration step within the first aerobic treatment zone (col. 3 lines 48-51). It would have been obvious to one of ordinary skill in the art to employ the steps of filtering and settling as suggested by '815 within the teachings of '173, Ahn and '113 in order to retain the solids within the fluid digester. The suggestion for doing so at the time would have been in order to minimize the amount of residual solids wasted during the treatment process (col. 2 lines 34-36).

66. Claims 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable von Nordenskjöld (US 6,395,173 B1) (will be referred to as '173) in view of Ahn et al. (*Water Research*. Vol. 35, no. 18, pp4267-4276, 2001) as applied above and in further views of Daniels (US 5,198,113 A) (will be referred to as '113) as applied above and Wilkie (US 2005/0167359 A1) (continuation in part of application 10/277,486 filed on October 22, 2002) (will be referred to as '359).

67. Regarding a mechanical comminution step for processing the incoming raw material, '173, Ahn and '113 are silent.

68. '859 discloses a fixed-film anaerobic digestion of flushed waste where the slurry is pre-treated by mechanical means. For claims 36 and 37, '859 discloses the step of pre-treating the raw materials by mechanical comminution ([0055]). Therefore, it would be obvious to one of ordinary skill in the art to employ the pre-treatment step as suggested by '859 in order to process the raw waste of '173,

Art Unit: 1797

Ahn and '113. The suggestion for doing so at the time would have been in order to render small or reduce the size of the suspended solids ([0055])

69. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over von Nordenskjöld (US 6,395,173 B1) (will be referred to as '173) in view of Ahn et al. (*Water Research*. Vol. 35, no. 18, pp4267-4276, 2001) as applied above and in further views of Daniels (US 5,198,113 A) (will be referred to as '113) as applied above and Ishida et al. (US 4,213,857 A) (will be referred to as '857).

70. '173, Ahn and '113 differ from the instant claim regarding the dwell time in the pre-acidification region.

71. '857 discloses an anaerobic digestion process that includes an acidification step where the treatment time is between 1 to 24 hours (col. 3 lines 21-25 & 36). Therefore, it would have been obvious for one of ordinary skill in the art to employ the treatment time suggested by '857 within '173, Ahn and '113 with a reasonable expectation of treating the waste. The suggestion for doing so at the time would have been in order to perform a decomposition on the solids within the waste in order to form a slurry (col. 3 lines 7-12).

72. The applied reference '857 does not specify a treatment time of 30 to 150 hours. However, the '857 reference discloses the general conditions for processing the waste and the optimum range to process the waste within the pre-acidification region is not inventive and does not define over the prior art since this can be achieved by routine experimentation (see MPEP 2144.05 II A).

Response to Arguments

73. Applicant's arguments filed 03/04/2010 have been fully considered but they are not persuasive.

74. In the first two paragraphs on page 7, applicant summarizes the personal interview held on 02/23/2010 and indicates where support for the amendment to the claims can be found in the specification.

75. In the third paragraph on page 7, applicant discusses the amendment to overcome the 35 USC 112 second paragraph rejection. This is found persuasive and the 35 USC 112 second paragraph rejection is withdrawn.

76. Applicant's traversal of the previous rejection begins on the bottom of page 7.

77. Starting in the first full paragraph on page 8 and continuing to the second full paragraph on page 8, applicant argues that the '173 reference treats waste water that includes components that do not easily degrade (applicant has provided a citation to column 4 lines 15-27 of the applied reference). This is not found persuasive since this passage details the methanogenic stage of the process during which biogas is produced and provides instruction on how the process is adjusted in the instance that these materials are present and thus does not clearly show a difference in structure. Also, with respect to claim 14, the type of material processed by the fermentor does not structurally define the claimed invention over the prior art (see also MPEP 2115).

78. In the last paragraph on page 8, and continuing to top of page 9, Applicant argues that the '173 patent (von Nordenskjold) does not disclose a means for

Art Unit: 1797

selectively segregating raw materials or a floatation device. This is not found persuasive. The applied reference of '173 does not **literally** state that the pump segregates and selectively transports the material to the high load region, however '173 discloses using devices to aerate the waste water in the mixing and acidifying region and a metering pump near the bottom of the tank in order to remove material into the heavy load region as was discussed above. Thus, the pump does selectively segregate the material within the tank due to differences in the density of the material within the acidification region and in combination with the aerator and conduit, transports the material from the first region to a main load region. Therefore, the pump, aerator and conduit are the art equivalent of the means for segregating and selectively transporting material.

79. Applicant argues on page 9, first full paragraph that the applied reference of Fassell fails to teach or suggest a means for segregating the raw materials and selectively transporting the raw materials. This is noted, however, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicants show no evidence as to why the examiners conclusion of obviousness is improper (do not argue against the examiners reasons for combining). The reason for combining Fassell with '173 was to use spillways to move fluid from one partitioned compartment to another compartment.

Art Unit: 1797

80. In the second full paragraph on page 9, applicant argues that the prior art reference must be considered in its entirety, i.e. as a whole, the examiner disagrees with this characterization of the rejection and reference.

81. In response to applicant's argument that the mobile unit and nozzle of Reynell does not render obvious the fermentor of the instant application, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

82. Starting on the bottom of page 9 and continuing to the top of page 10, that the applied reference of Mann fails to teach or suggest a means for segregating the raw materials and selectively transporting the raw materials. This is noted, however, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicants show no evidence as to why the examiners conclusion of obviousness is improper (do not argue against the examiners reasons for combining). The reason for combining the controller with '173 was to prevent surplus waste from accumulating in the chamber.

83. Starting in the last paragraph on page 10 and continuing to the top of page 11, applicant argues that the applied reference of Wilkie fails to teach or suggest

Art Unit: 1797

a means for segregating the raw materials and selectively transporting the raw materials. This is noted, however, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicants show no evidence as to why the examiners conclusion of obviousness is improper (do not argue against the examiners reasons for combining). The reason for combining Wilkie with '173 was to include a pre-treatment means that would render small or reduce the size of the suspended solids.

84. Regarding applicant's argument in the first full paragraph on page 11 that '173 and Ahn fail to disclose a means for segregating and selectively transporting, this is not found persuasive, as was discussed earlier, since the applied reference of '173 discloses a means for segregating and selectively transporting material.

85. Applicant argues in the second full paragraph on page 11 that the applied reference of Copa does not disclose a means for segregating and selectively transporting waste and that the reference does not filter raw material, but treating agents. This is noted, however, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicants show no evidence as to why the examiners conclusion of obviousness is improper (do not argue against the examiners reasons for combining). The reference of Copa

Art Unit: 1797

was applied to the instant claims to teach the process of filtering and settling and that these were conventional processing steps at the time of the instant application.

86. On page 12, Applicant argues that the applied reference of Wilkie fails to teach or suggest a means for segregating the raw materials and selectively transporting the raw materials. This is noted, however, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicants show no evidence as to why the examiners conclusion of obviousness is improper (do not argue against the examiners reasons for combining). The reason for combining Wilkie with '173 and Ahn was to include a pre-treatment means that would render small or reduce the size of the suspended solids.

Conclusion

87. No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL HOBBS whose telephone number is (571)270-3724. The examiner can normally be reached on Monday-Thursday 7:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Marcheschi can be reached on (571) 272-1374.

Art Unit: 1797

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. H./
Examiner, Art Unit 1797

/Michael A Marcheschi/
Supervisory Patent Examiner, Art
Unit 1797